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Stem cells and regeneration: a special issue

Welcome to *Development*'s special issue on stem cells and regeneration. Developmental biology as a field is undergoing profound transformations. The sequencing of genomes has allowed us to move away from single-gene studies and to focus on a more global understanding of the gene regulatory networks underlying development. Modern imaging techniques now allow the precise quantification of developmental processes, pushing the field toward more physical and quantitative analyses. Also, in recent years we have witnessed the emergence of the stem cell field as a research area that shares a major interface with developmental biology. Most aspects of stem cell biology – including studies focusing on pluripotency, regeneration, reprogramming, epigenetics and lineage segregation – are highly relevant to the field of developmental biology, either using developmental principles to direct stem cells down desired lineage pathways (or to revert their differentiation) or using stem cells as a tractable model to dissect developmental processes. Indeed, one could argue that controlling stem cell differentiation *in vitro* is a critical test of our understanding of development.

To recognise and reflect this shift in the field, *Development* has been making a significant effort to increase our visibility in the stem cell community. We have a strong history in the field, but the journal's interest in stem cell work has perhaps not been obvious in the past. In the last few years we have therefore undertaken a number of steps to raise the profile of the journal in this area. We have recruited a number of expert academic editors in the stem cell field, including Austin Smith, Magdalena Götz, Gordon Keller and, most recently, Benoit Bruneau (replacing Shinichi Nishikawa, who has recently retired and whom we thank for his dedication and expertise). We have also reinforced our editorial advisory board with more stem cell experts, as well as with greater expertise in other new areas of developmental biology. In 2010, we created the 'Development and Stem Cells' section of the journal to host stem cell papers, and many of the most downloaded and cited papers of the past two years belong to this section. Given this success, we decided to move one step further and create a dedicated 'Stem Cells and Regeneration' website (stemcells.dev.biologists.org) within the journal's webpages. All the stem cell-related papers published in the journal will be collected together on this site, providing a one-stop shop for stem cell researchers. The site will also bring you news from the stem cell community, direct you to upcoming events, highlight notable papers that you might have missed, and provide an easy way of accessing the stem cell content that you are particularly interested in.

The launch of the Stem Cells and Regeneration site and this special issue, which is dedicated entirely to the stem cell field, are timed to coincide with this year's meeting of the International Society for Stem Cell Research (ISCCR) in Boston. We are particularly delighted to be publishing a spotlight based on John Gurdon's Nobel Lecture, given in Stockholm in December 2012, as well as his commentary on the original 1962 paper on the cloning of a frog by nuclear transfer, which was published in *Development* (known then as the *Journal of Experimental Embryology and Morphology*). The co-recipient of the 2012 Nobel Prize (and current ISSCR President) Shinya Yamanaka has also contributed a perspective on the induced pluripotency field. The issue also contains a series of posters, primers, hypotheses and reviews from leaders in the field, dealing with diverse aspects of stem cell biology, as well as a selection of primary research articles that exemplify the diversity of stem cell work published in the journal and now highlighted on our Stem Cells and Regeneration site.

Aside from their obvious biomedical applications, stem cells provide a unique opportunity to explore human embryonic development – using culture techniques to examine growth, differentiation and patterning of human tissues and organs. This field is clearly of particular interest to *Development*, and we strongly encourage submissions involving studies with human embryonic tissues and/or derivative stem cells. To further our efforts in underscoring the links between developmental biology and stem cell research, we are planning a workshop: 'From Stem Cells to Human Development' in late 2014 – look out for further announcements nearer the time.

We hope you enjoy the contents of this special issue, and we encourage you to explore our new website.

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